

Remarks

This Paper is responsive to the Office Action mailed December 24, 2003 (Paper No. 9). Entry of this Paper and reconsideration of the subject application in view thereof are respectfully requested.

Claims

Claims 1-5 and 10-16 were pending. Claims 1-5 and 10-16 stand rejected.

Rejections under 35 U.S.C. §103(a)

Claims 1-5 and 10-16 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Zyck, et al. (U.S. Patent No. 6,541,048). Specifically, the Examiner asserts that Zyck, et al. discloses a coated chewing gum product comprising a chewing gum core and coating on the core, the coating comprising an acid blocker, with famotidine as the preferred acid blocker and a coating syrup comprising a bulk sweetener. The Examiner further asserts that it would have been obvious to have determined the ratio of glycyrrhizinic acid to the active agent because Zyck discloses [that] the dosage level of acid blocker used in a preferred coated chewing gum product will vary depending on the acid blocker used.

Applicant traverses the rejection for the reasons set forth below. Even assuming, *arguendo*, all of the Examiner's assertions, Zyck, et al. does not teach or suggest, either explicitly or implicitly, that which is recited in claim 1, namely, a complex of a pharmaceutically acceptable carrier, an active agent, and glycyrrhizin, wherein the active agent contains at least one nitrogen-containing moiety; and wherein the composition is substantially free of uncomplexed active agent.

As stated in Zyck, et al. (column 8, lines 16-49), the ingredients are added together all at once and simply mixed (not complexed) with a standard mixer and the "mixed ingredients" are formed into pellets or balls. Zyck, et al. does not teach the forming of a complex by first dissolving glycyrrhizin with an aqueous solvent and then gradually adding the active ingredient to the solution. Zyck, et al. combines the active ingredient with glycyrrhizin all at once. By its

very nature, Zyck et al. cannot suggest claim 1, as all of the active ingredient would be mixed, and therefore, uncomplexed.

In contrast, the intention of the present invention is to complex the drug (i.e., active agent) with a carrier and glycyrrhizin. The present invention forms a complex which enhances the water solubility of the active agent by first combining glycyrrhizin with an aqueous solvent which contains at least one nitrogen-containing moiety. This complex is formed by first dissolving or dispersing glycyrrhizin in an aqueous or hydroalcoholic solvent. Then, the active agent is gradually added into the glycyrrhizin solution or gel under agitation to resulting a clear complex solution. The complex is recovered by spray drying or freeze drying. (see specification, page 19, paragraph 71).

As is also explained in the instant specification (page 11, paragraph 42), the complex formed in the present invention possesses different properties than either the glycyrrhizin or the active ingredients. The thermal properties of the active agent are changed as is analyzed by differential scanning calorimetry and Fourier transform infrared spectroscopy, which indicate the change in the vibrational states of one or more functional groups. In addition, the solubility of the resulting complex is higher in water and aqueous alcohol than the solubility of the active ingredient alone. The water solubility of the weakly basic active agents, such as famotidine, is significantly improved through their incorporation into the glycyrrhizin complex.

The applicant asserts that one of ordinary skill in the art would know that simply mixing several ingredients simultaneously together in a mixer is a chemically different process which results in a chemically different product compared to the instant invention, which is a complex with chemical properties different than the ingredients themselves. As such, Zyck, et al. does not render the instant application unpatentable. Withdrawal of rejection is respectfully requested.

Claims 1-5 and 10-16 also stand rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Mizumoto et al. (U.S. 5,576,014). In particular, the Examiner asserted that Mizumoto et al. discloses intrabuccally dissolving compressed moldings comprising a saccharide having a low moldability having been granulated with a saccharide having high moldability, and that preferable active ingredients used are famotidine, tamsulosin hydrochloride and YM 934.

The Examiner further asserted that it would have been obvious to have determined the ratio of glycyrrhizinic acid to the active agent because Mizumoto discloses the active ingredient may be used in an amount of 50% w/w or less, though it varies depending on the nature of each active ingredient.

Applicant respectfully traverses this rejection and asserts that claims 1-5 and 10-16 are patentable over Mizumoto et al. Again, Mizumoto et al. neither teaches or suggests the invention as claimed in claims 1-5 or 10-16. Mizumoto et al. teaches the production of a product by first granulating an active ingredient directly with a saccharide. The resulting granules are then compressed and molded to obtain tablets which dissolve intrabuccally. No complex is formed in Mizumoto et al. One of ordinary skill in the art would know that this is a chemically different process which results in a product other than that of the present invention. The present invention does not yield a product which is granulated. The present invention is a product which is a complex as described above in response to rejection by Zyck, et al. Thus, one of ordinary skill in the art would not be able, absent undue experimentation, to arrive at the present invention through the teaching of Mizumoto et al. Accordingly, claims 1-5 and 10-16 are patentable over Mizumoto et al. Withdrawal of rejection is respectfully requested.

FEE DEFICIENCY

☒ If an extension of time is deemed required for consideration of this paper, please consider this paper to comprise a petition for such an extension of time; The Commissioner is hereby authorized to charge the fee for any such extension to Deposit Account No. 04-0480.

and/or

☒ If any additional fee is required for consideration of this paper, please charge Account No. 04-0480.

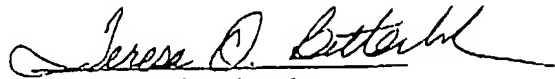
Serial No.: 10/071,380
Group Art Unit: 1615

Closing Remarks

Applicants believe this response to be a full and complete response to the Office Action. Accordingly favorable reconsideration in view of this response and allowance of the pending claims are respectfully requested.

Respectfully submitted,

March 23, 2004



Teresa O. Bittenbender
Registration No. 47,425
Attorney for Applicants
Thomas M. Haas
Registration No. 50,210

DECHERT LLP
A Pennsylvania Limited Liability Partnership
1717 Arch Street
4000 Bell Atlantic Tower
Philadelphia, PA 19103
Fax: (215) 655-2213
Attn: Teresa O. Bittenbender, Esq.
(215) 994-2213